ABSTRACT OF THE DISCLOSURE

[0075] A transmitter (10) based on a frequency synthesizer includes an LC tank (12) of a digitally controlled oscillator (DCO) with various arrays of capacitors. The LC tank 12 is divided into two major groups that reflect two general operational modes: acquisition and tracking. The first group (process/voltage/temperature and acquisition) approximately sets the desired center frequency of oscillation initially, while the second group (integer and fractional tracking) precisely controls the oscillating frequency during the actual operation. For highly accurate outputs, dynamic element matching (DEM) is used in the integer tracking controller to reduce non-linearities caused by non-uniform capacitor values. Also, a preferred range of the integer tracking capacitor array may be used for modulation after the selected channel has been acquired. A digital sigma-delta modulator circuit (50) drives a capacitor array (14d) in response to the fractional bits of the error word. On mode switches, the accumulated error is recalculated to a phase restart value to prevent perturbations.